

MARCH 1986

TAIG

TWIN CITIES ATARI INTEREST GROUP

(c) 1986 TAIG. Published by the Twin Cities Atari Interest Group (TAIG), which is an independant organization with no business affiliation with Atari Corp. Permission is granted to any similar organization, with which TAIG exchanges newsletters, to reprint material from this newsletter, providing the author is given credit.

Opinions expressed within are those of the authors, and not necessarily the opinions of the officers or members of TAIG.

President: Dick Johnson (521-0245) Vice President: Jim Glish
Treasurer: Phyllis Landsman Secretary: Dave Stengel
Newsletter Editors: Cory Johnson & Dave Stengel

Article submission

Articles should be submitted in standard text files (Atari Writer, Hometext, Speedscript) or in Letter Perfect format. If you don't own a wordprocessor, you can enter an article into BASIC using REM statments. Or, send legibly written or typed text (make any schematics legible also, we can't reprint what we can't read) to

Cory Johnson 1835 Shadyview Circle, Plymouth, MN. 55447

Dave Stengel 3230 Shadyview Lane, Plymouth, MN. 55447

Articles may also be dropped off at

Wizard's Work 18th and 36th, New Hope, MN.

If you wish, you can also upload your article to the BBS. Leave a message to the sysop stating that the upload was an article. The BBS number is 473-2897

DEADLINE

Deadline for submission is the 10th of the month. Any articles recived after the 10th will be held until the next newsletter.

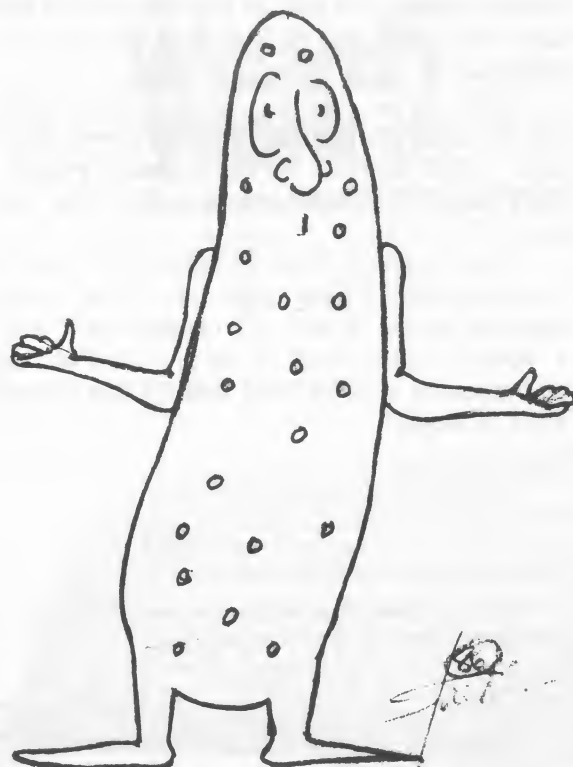
Classified ads.

Taig members may also submit FREE classified ads 2 lines in length. Ads are submitted in the same manner as articles.

Membership renewal

To renew your membership, send a check for \$15.00 made out to TAIG, and on a seperate piece of paper, your name, and address to

Marshall Keith 413 Connelly Lane, Burnsville, MN. 55337.
For more information, call Marshall at 435-1072.



WE'RE IN A PICKLE
SEND IN AN ARTICLE
THIS MONTH

Notes from the Pres.

OK all you ST owners, if you don't have your ROM chips, get with it. Everyone should have them by now. If the store where you bought yours doesn't, call Wizards Work or User Friendly and get a set now.

We have a new Disk Librarian, Dave Stengel. Dave is also our Secretary, Co-Newsletter Editor, and Co-Sysop. Any one of these job would be plenty for one person and Dave has nothing but my admiration. But is not fair that one person should have to bear so much of the responsibility for keeping the club going, so I'm asking for a volunteer to take over the job of secretary. Its an easy job, just taking notes during the meeting and writing them up for the newsletter. If your interested please call be at 521-0245. Thank You Dick Johnson

Well its looks as if Commodore has gotten their 3rd lease on life. The've gotten financing go get them by for another year, which may be all they need. Only time will tell, but I'm hearing more dissatisfaction with the Amiga and more favorable comments about the ST.

It looks as if the Subra Hard Disk is out and getting favorable reviews from the folks at Compuserve. Its working well and a lot of the people like the ability to treat it as 4 drives thereby keeping the disk menu size down without resorting to folders. The only negative comment I've hear is that its a little noisy. I have hear rumors that the 20MB Atari HD is out in some locations.

There is now a battery back-up clock available for the ST called the LogiKhron Clock Card from Soft Logik Corp. Its a cartridge and desk accessory program which costs about \$50 and will keep your ST on time from now on.

Atari is now shipping the 520STM (STM?) the M stands for Modulation. Thats right the 520 can finally be connected to your TV set, but remember you'll still need a Monitor for serious 80 col work. The 1040 has also been appearing in 1040STF and 1040STFM (the F stands for build in Floppy).

Analog - Antic Disks

As you know TAIG members can buy either the Analog or Antic Disk for \$4 at the meeting, if they have a subscription to that magazine. It has come to my attention that some people are violating that agreement.

Therefore starting with the March meeting we will be rechecking everyones status. If you wish to continue receiving the disk please bring the current issue of your magazine with the mailing label to the next meeting and your membership card. See Marshall Keith (Membership Committee) if you need a new card or to renew (Due are \$15 per year).

Thank You for your cooperation - Dick Johnson

Zoomracks is probably one of the most original database programs I've run across. Its laid out to look like a rack of time cards with the first line of each card visible in the rack. This gives you a visual look at 22 cards at one time, you can scroll up or down, search, and sort by field within each card. Each card can contain up to 27 field and each field can contain up to 2000 characters. Each field can be set to a fixed length display or left at the default of verifiable length. Fields can be rearranged or added at any time without reconstructing the file, this flexibility is zoomracks greatest strength.

Up to 9 rack may be in memory at the same time. When more than 1 rack is viewed at the same time the text is compressed by removing the vowels, which make it a little strange but still readable, if this is unappealing to you, you can change the display to truncate the text instead.

All of these functions a accomplished by following a series of 1 key commands which are presented through menus at the bottom of the screen. Many of the commands take you from one menu to another. Much of this is tiresome if it were not for the fact that Zoomracks has a user definable macros which permit you to string together commands or commonly used text.

Zoomracks claims to be a Relational Data Base, a term a little overworked these days. What it means in this case is that you can load multiple racks (files) into memory at the same time and interact with the different files. For example a rack could contain form letters and another addresses for a mail merge type operation.

On the negative side there is no math functions available and the reporting abilities leave much to be desired (I have talked to the author who says that a upgrade will soon be available). This program also is not one which can be just booted up and used, as you get lost very fast. In fact I've spend more time getting used to this program than any other I can think of. However a very complete manual (with a complete index, something I wish more software vendor would do). In addition there are to 2 demonstrations included on the disk. One which gives demos of application you can use it for. And the other which goes into detail on functions and how to use them.

Overall I would give it a ** star rating at its \$79 list price. However Zoomracks has offered us a group discount of \$48 or more depending on how many are offered. This makes it a good buy, but in order to get this price we must sent in the money by March 31 or order 6 or more by April 30th. If your interested call me at 521-0245 after 5 PM and I'll set it up and answer any questions you may have.

Editors Notes
by Cory Johnson

I'll admit it right away, this month took both Dave and I by suprise, I didn't notice that the last Sunday was Easter Sunday. Thus, the newsletter was a bit rushed.

We could really use articles, we've been running smaller than we could. Wouldn't it be really nice to turn out a thick, informative newsletter? Dave and I have done all we can, neither of us has the experiance to write any hardware mods, and being students, we haven't found many practical personal uses, unlike those of you who use the Atari in your business. So, what does this mean? Well, basicly, Dave and I can write our adventure reviews, and do re-prints from other newsletters, but for the original, technical articles, we rely upon you, the members. Honestly, I think Dave and I have been let down. We came into the editor position in a time of crisis (the previous editor quit), we had hoped that articles would begin flowing in, but they've bearly even trickled.

Because of our lack of orignal material, we've come to rely upon reprints from other newsletters, and the Antic Assembly Language column. As of this month, the former has fininished its run. This means that we'll be about 1 double sided page thinner each month unless that space is taken up by you, the members.

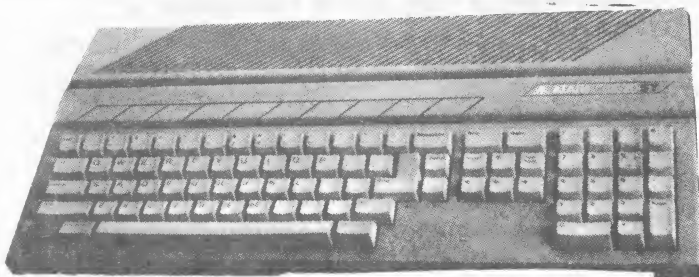
I'm challenging each of you to donate 1 or 2 hours A YEAR to write an article, review, or draw a cartoon. 1 or 2 hours is all we need from each of you, but if Dave and I have to write or retype 3 articles a month, thats at least 6 hours that we should be spending checking spelling and formating the newsletter.

Don't put it off, start writing today.

D.O.M.

Due to the transition to a new disk librarian, a list of the programs on this months disk of the month was not available at the time of printing.

Power without the price.



Atari 520ST & Color Printer
Package includes The popular
Atari 520ST computer and a
Canon ink jet color printer.
Also includes monitor, disk
drive, and cables.
\$1145.00

**Atari 520ST & Dot Matrix
Printer**

Package includes the Atari
520ST computer and an Epson
LX80 dot matrix printer. Also
includes monitor, disk drive,
and cables.
\$1095.00

Each ST package sold also
includes 5 software titles,
including Megaroids and
Neochrome.

**Wizard's
Work** 

your home computer center

Post Haste Square, County Rd 18 & 36th Ave No.
New Hope (North Side of Bldg.)

545-2136



Atari 130XE Package

Atari 130XE computer
Atari 1050 disk drive
Atari 1027 letter quality
printer
4 software titles, including
Atari Writer.
\$399.00

A Cheap Upgrade for Your Print Buffer.

by Dick Johnson

Do you own a external print buffer like Microfazer or another which is expandable but at the time you bought it you couldn't afford that extra memory you would have liked? Or perhaps you would like get one but want to hold the cost down. Well memory has come down in prices in the last few years and it can make a big difference now. I expanded my Microfazer from 32K to 128K for only \$20 by buying 12 (4164 ns150) 8k memory chips from ACME Electronics and inserting them in the buffer. If you have another type of expandable buffer or are not sure what chips to use, try the following:

1. Disconnect the buffer from its power source.
2. Examine the out side of the box for screws or points that plastic parts may connect together.
3. Remove the covers of your buffer, at this point you should make sure that you are grounded since from now on you may come into contact with components which can be caused damage by static electricity. It is best to work in a non-carpeted area.
4. Examine the board looking for rows of empty sockets by other chips in rows of chips with the same numbers on each chips. You may also find the these sockets are labeled like U1, U2, U3 etc. These chips are are your memory chips. There will be on or more numbers on the chip which identify the chips. Some will be number meaningful to the manufacturer only but one of them will what you want. Most likely it will be a 4164 followed by a number like P3 or C2 or NS150. This last number indicates the speed of chip (300, 200, 150 nano-seconds respectfully) The additional chips that you buy must be as fast or faster that the current chips that you have. In other words if you have NS200 chips you can use NS200, NS150 or NS120 chips but not NS300 chips. If your chips don't have 4164 on them compare the numbers to an ad for Dynamic RAM chips in a computer magazine or take one with you when you go shopping.
5. Now that you know what you need, where do you buy it. You can order chips buy mail (look in mags like Byte and Compute) I've seen 4164 NS chips offered for as little as \$.89. But I got mine locally at \$1.59, almost twice as much but no hassle if I should need to return them and besides no wait and I can ask questions if I'm in doubt about what I need. This is something to remember when it comes to buying anything. Just how comfortable do you feel about the purchase. Do you know all the answers or are you treading in mud up to your waist. Don't expect your local computer store to explain that Database program or game you got by mail (or worst didn't pay for at all) when you only spent your time looking there and not buying. Treat people fair and you'll be treated fair in return

6. Now that you've got your chips insert them in the sockets in the same manner as the current chips. There are clues to which direction, like a half moon cut out of one end of the chip or a dot in one corner which you can match against.
7. Now reassemble your unit and you should be ready to go. Be sure to check your manual as it will provide more information and procedures for checking the chips you have installed.

Now after going through all this you say you don't have a buffer but would like go get one. After all why should we have to spend our time waiting while the printer holds us back. Check out the stores and magazine ads (I've seen the Microfazer 8K for \$140 and the 128K for \$270). Expand a 8K model to 128K yourself for \$25 or less and you'll never wait on Print Shop again.

Of course those of us with ST could get a software spooler cheaper but remember spoolers and RAM disks eat up a lot of memory and cannot be moved from computer to computer like a external buffer can.

ST-COPY - A Review by Dick Johnson

Well I've been expecting it and its here! The first copy program for copy protected software. Now first off let me say it won't copy all copy protected software. For example it won't copy its self (so much for the claims that we have a right to make backup copies of our software).

ST-COPY did a good job on all my key disk type software, but the folks at SUND06 are a little tricky. They designed there software so that if it was copied, the copied program would run for a while before locking up. Thereby providing a demo program to get you interested enough to go out and buy the real thing. ST-COPY didn't pick up on this and the copy failed. However ST-COPY will make a copy the the Library disk which enables you to make different time frame copies of the game as you go along which is what I wanted all along.

So here we go again. Its round two in the never ending war of the copy protection game with the develops coming up with new tricks and the hackers over coming them. This will continue until we can show the develops were not a bunch of thieves. But people who are willing to pay a fair price for a good product. Its a two way street though, one in which we expect bugs to be fixed without calling them upgrades and charging us exorbitant prices for fixs which should been there in the first place. But because of the practices of the past by too many people, it is we who will have to prove ourselves first.

Just noticed that theres another copy program out called MI-DUPE by NICHTRON perhaps we can get a review of it soon.

STING - ST Interest Group
March 5, 1986

* ST: THE HOTTEST SELLING NEW PC

The hottest computer launched in 1985 (by far) was the 520ST system. Around the world, sales accelerated throughout the year. In Germany the ST was the all-around best selling computer. In the USA, the ST far outsold the Amiga despite all the hype, and was chosen "Best Hardware Value of 1985" by Infoworld. The Atari ST is already far ahead of the pace of other top computers like the Commodore 64 and Apple Mac at a similar time after their launches. We fearlessly predict that the ST will be the overall winner of 1986!

* ATARI LAUNCHES 1040ST -- FIRST MEGABYTE SYSTEM UNDER \$1000

With an almost unbelievable price/performance ratio, the new Atari 1040ST breaks the one megabyte barrier. With a meg this computer packs more raw computing power than ever before, at an Atari low price.

The 1040ST is also a step up in convenience. The double-sided disk drive is built in, as is the power supply for both. We have eliminated the 2 external power supplies and the drive cable for less desktop clutter. Of course, you can still add an external drive and all other peripherals. The internal drive is located where the joystick and mouse ports were on the 520, and those ports have been moved to the front of the keyboard to make it easier for left-handers to use the mouse.

The 1040ST is an exclusive product for computer speciality stores, and should be available this month.

* MORE ONLINE SUPPORT FOR DEALERS AND END-USERS

Atari's online support has been expanded to include every major national service. In addition to those, the Atari corporate bulletin board has been expanded from 2 to 4 lines by adding two ST systems.

Nationwide, Atari representatives respond to inquiries on CompuServe, BIX, GENIE, the Source, Delphi, and the Well. Each of these systems has dedicated areas for Atari computer support. Anyone reaching these systems can leave questions for Atari people to answer. The systems also include areas for text information and for public-domain software downloads.

To reach Atari Base call 408-745-5308 anytime at 300 or 1200 baud. To reach the special ST lines call 408-745-2642. Many free programs are available through these lines.

STING BBS:

The STING BBS is up and running. We have had problems with people getting kicked off the system because Ma Bell decided to put call waiting on the BBS line instead of tore line. Hopefully this has been taken care of and will cause no more problems. The number to call is: (612)786-2458.

* 11 RECOMMENDED ST SOFTWARE TITLES

Atari reviewers, with help from user groups and dealers have selected 11 software programs in terms of sales and quality. Here are the titles (in no particular order), followed by some guesses for hot titles to come in the next couple of months:

PRODUCTIVITY:

- VIP PROFESSIONAL... a complete Lotus 1-2-3 workalike.
- H&D BASE..... a complete emulation of DBase II.
- DEGAS..... a top quality paint program for all graphics modes.
- REGENT SPELL..... easy, complete spelling checker that is compatible with most word processing systems.
- ST TALK 1.2..... a true bargain for telecommunications, with most features a power user needs. (Barely noses out Mi-Term in this category.)
- EASY DRAW..... a sophisticated "draw" package (as opposed to "paint") which lets you manipulate objects on the screen -- resizing, stretching, and putting different ones on top.

ENTERTAINMENT:

- SUNDOG..... a combination of adventure and arcade action, a complex game that will take many hours to play. Fighting, trading, and exploring.
- KINGS QUEST II..... an animated graphic adventure as attractive as it is fun.
- ULTIMA II..... a role playing game with monsters, dungeons, and magic.
- TREASURE ISLAND.... a graphic adventure game based on the classic novel.

EDUCATION:

- TYPING TUTOR / WORD INVADERS... build up your typing skills painlessly.

* HOT SOFTWARE COMING SOON:

- MUSIC STUDIO..... a terrific music program, supporting MIDI as well as the internal sound chip. A sure winner!
- GRAPHIC ARTIST..... a very complete package for design, typesetting, and even engineering. Includes some features never before seen in this type of program, like a spreadsheet!
- ATARI PLANETARIUM.... the most complete astronomy package ever. Shows the sky at any locati!
- FLIGHT SIMULATOR..... Sublogics best-seller come to the ST with multiple windows for different views, pull down menus to change options, mouse control, and spectacular graphics.
- TIME BANDIT..... a multiple level arcade game with the best graphics seen yet.

This newsletter has been brought to you by User Friendly. Since STING members pay no dues there is no fund for producing or mailing out newsletters. I would certainly be willing to write a newsletter, but we can not depend on User Friendly to foot the bill. If you would like to get a monthly newsletter, then provisions must be made, like dues and a membership list. Please let me know how you feel, and this will be brought up at the next meeting. Paying membership dues would also help to finance the STING BBS.

Thanks,
Brian Reynolds

* Reprinted from the Atari Dealer News



SUNDOG - A Review by Dick Johnson

As you may know I'm not not much of a game played so bear with me as I take you on a voyage into the future where you have just inherited the Sundog, a battered spacecraft but a good one, and a contract to supply the lost colony with the supplies which have been have already been paid for. Your task to learn how to survive and fulfill your contract before the bank forecloses on your loan.

Now thats not a lot of information but other than how to move around on the ground and in space, its learn as you go. Which is part of the fun. Your world consists of 12 solar systems, 18 planets, and 57 cities. You move about from planet to planet in the sundog, sometimes fighting off pirates. Each planet has 1 spaceport which is the only place you can land. On the ground you can move about on foot or drive the Pod (the storage portion of the Sundog) around the city or even around the planet. There are also transporter stations for moving around the cities which can be used.

Everything happens in real time or faster (like when your sleeping or driving across the planet) unlike Ultima II theres no conversation except for buying and selling and limited conversations with muggers. When you meet muggers on the street a window opens showing their approach but you have to take the action in quickly (such as how many are there) because as soon as they reach you the picture is replaced with a dialog box and the actions returns after the conversation is completed, at which time you either fight it out or walk away depending on the out come of the conversation. Another shortfall is although you may save a game in progress, only one save is permitted. Allowing multiple people to have there own game going. If you die you can only go back to the last time you entered the ship (when information is saved) or start over again.

Here a hint the screen dump (Alt Help) works and can provide helpful reference as you progress through the game.

How do I rate the game overall. *** stars

The Goonies-A review

by Sean Norton

Goonies is an eight screen action game, that requires logical thinking and teamwork. It can be played by one person or with a partner. Both versions of the game are the same, but if you play solo you will have to alternate control between the two characters in order to accomplish the task of getting to One-eyed Willy's Pirate Ship, the eighth and final screen.

The Graphics for the game are quite good, considering that there are a lot of objects moving on the screen at once. As you go from screen to screen you are presented with a new pair of movie characters to work with.

I played this game for several days before I was able to reach the final board. That doesn't seem too long to master the game, but I had the aide of the hint sheet and treasure map included with the program and also a step by step solve for the game, which I downloaded from a BBS. Even though the moves are presented in order, exactly as they need to be executed, it is difficult enough just to make them.

My only complaints are that I found it rather difficult, but not so difficult as to give up. I also found the background music to become quite bothersome after hearing it several times. It's the original soundtrack from the movie. After a while you begin to hear Cyndi Lauper singing the words in the back of your mind, what a headache. So if your not too crazy about the song, like me, you may want to turn the sound off.

All things considered I would call Goonies a great game program that has new and fresh ideas that keep you from getting tired of it. I would recommend it to anyone who enjoys a good challenge in an action/adventure game.



ANTIC PUBLISHING INC., COPYRIGHT
1985. REPRINTED BY PERMISSION.

*** CHRIS CRAWFORD ***

ASSEMBLY LANGUAGE COURSE
EXCLUSIVELY FOR USE OF WORLDWIDE
USERS NETWORK

LESSON EIGHT: SOME ADVANCED TOPICS

We have covered all of the traditional material associated with 6502 assembly language programming. However, there remain a number of topics that should be addressed before we finish. They are not closely associated with each other, so I will take them in random order.

The first topic is perhaps the most difficult one for a beginning assembly-language programmer: Where do I begin? How do I put together an entire assembly language project?

The problem here is seldom a technical one. Most beginners are stopped by their own lack of goals rather than any lack of technical expertise. One does not just write an assembly language program because one knows assembly language -- that is putting the cart before the horse. One starts with goals and then considers means.

A story from my early days with micros will illustrate this point. I did not have anybody to teach me assembly language. I decided in 1976 that I wanted to do wargames on computers. Accordingly, I bought a KIM-1, an early 6502-based single-board computer. I received it in January 1977. I studied the manuals and taught myself 6502 machine language. I had my first wargame up and running in six weeks. That means that I not only taught myself 6502 in six weeks, but I wrote and debugged a program at the same time.

Now, the point of this story is NOT "Wow, isn't Chris Crawford the smartest programmer who ever lived!" The point of this story is that goal-oriented learning is far more effective than goal-less learning. Had I sat in on some technical course on 6502, I would have taken months and months to learn the material. Because I had a clear goal, I learned very quickly.

My advice to you, the beginning assembly programmer, is this: You have acquainted yourself with the rudiments of 6502 programming. If you have some project you would like to pursue, some goal you would like to achieve, then do it. If not, don't waste your time trying to use a tool for its own sake.

Assuming you pass this first test, there remains the broad problem of organizing your assembly language program.

I suggest that you break your program up into six modules, each forming a separate source code file. These six modules would be:

EQUATES file: this file defines all of the equates used by the program: the data areas, the page zero and page six usage, and perhaps some of the large graphics and screen structures.

DATA file: this file contains all of the static tables used by the program. This would include all the text messages that would be printed onto the screen, bitmaps of graphics images, graphics character set definitions, and so forth.

INITIALIZATION code: this file contains the routines that initialize the program when it first fires up. They set up the screen, clear out all the special graphics and sound registers, zero out all the arrays that need to be cleared, and do all the other legwork associated with clearing the decks for a program.

INTERRUPT code: this module contains the code associated with any interrupts used by your program. This would most commonly involve vertical blank interrupts and display list interrupts. Inasmuch as your interrupts should be well-separated from your other code, you might as well keep the code in a separate file.

MAINLINE code. This includes the main program loop that controls the primary behavior of the program. If you have problems imagining this, think of it as nothing more than a series of subroutine calls arranged in a loop, with each subroutine handling one chunk of the overall process.

SUBROUTINE code: After a while you build up a collection of subroutines for handling standard processes in the program. Keep them here.

The second topic I would like to talk about is the place of the 6502 in the larger world of microprocessors. The 6502 is undoubtedly the most successful of microprocessors to date, having been installed in more systems than any other microprocessor. It is also a very old microprocessor, having first appeared in 1976. That makes it nine years old.

A very simple way to approach the world of microprocessors is to group them into two sets -- the Sixes and the Eights. The Eights represent the earliest group of microprocessors, they trace their lineage all the way back to the 4004, the first microprocessor. The 4004 was followed by the 8008, the first eight-bit microprocessor. The 8008 was superseded by the 8080, which was in turn followed by the Z-80. The Z-80 was the most advanced eight-bit processor in the Eights line. The next step was to go to 16 bits with the 8088 and 8086. These were followed by the more powerful 80186, 80286, and 80386.

The fundamental philosophy of all the Eights can be expressed in two words: features and compatibility. The designers of the Eights were always adding new features to the microprocessors with each successive generation. The goal seemed to be to pack as many bells and whistles in as would fit. The second goal, compatibility, meant compatibility with the previous microprocessor in the series. This insured that software developed for previous versions would still run on the newer versions.

The result of this design philosophy was a series of powerful microprocessors that were quite complex in layout and rather difficult to learn. The features were piled up

on each other in a bewildering array. Once you learn the system, it seems natural enough. But it is something of a mess.

The Sixes include the 6800, the 6502, the 6809, and the 68000. The two key words guiding the design of the Sixes are cleanliness and speed. The idea was to make the instruction sets clean, powerful, and fast. The hope was that the processors would be so easy to learn that compatibility would not be a problem. The design approach was to use just a few simple instructions, but give them variations that greatly extend their power. Thus, the 6502 has a LDA instruction that can be used with a great many addressing modes.

The 68000 is the 32-bit entry into the Sixes line. It carries the idea of cleanliness even further than the 6502. The 68000 uses a single instruction with different modes to replace the 6502 instructions LDA, LDX, LDV, STA, STX, STY, TXA, TAX, TYA, PHA and PLA. That's quite a simplification!

The 68000 also boasts sixteen registers, each 32 bits wide. That's a total of 512 bits of register space, the 6502 has 32 bits of equivalent register space. Those sixteen registers eliminate many of the data-shuffling problems so common with the 6502.

The 68000 has a linear address space 24 bits wide -- that's sixteen megabytes! Thus, a 68000 can directly address 16 megabytes of RAM and ROM. The 6502, by contrast, can only address 64K directly -- it must use paging systems that slow it down to address more memory.

Finally, the 68000 has a number of advanced capabilities that make possible a number of special capabilities. I will describe just one stack frames. The 68000 makes it easy to set up a local, temporary stack when you enter a subroutine. Thus, subroutines can have their own local variables stored on the stack, accessed via a special stack pointer register. The 68000 will manage all the housekeeping necessary to keep such a system straight.

Did I mention that 68000 has hardware multiply/divide?

***** THE END *****

VOICE RECOGNITION FOR THE ATARI

By Bob Lopes - JACG

If you are the type of person who loves hooking up peripherals to your Atari then you are really going to enjoy the latest hardware from Covox Inc. For \$89.00 this company has produced a voice digitizer/recognizer/music writer (yes, all this and more) called "the Voicemaster." I was infinitely intrigued by Covox's claims so I ordered one from ANTIC magazine back in October. I literally forgot about it until the day before Christmas when UPS delivered it (I guess there really is a Santa Claus). It was well worth the wait.

The unit comes with a headset type microphone, an interface box, and the necessary software and manuals complete with some very impressive demos. The headset plugs into the interface box which, in turn, plugs into joystick port #2. You simply run the autorun disk with BASIC installed and it will boot up with the main menu. From this you can immediately test any of Voicemaster's functions.

A suggested start is to select the bargraph demo in order to adjust the gain of the interface box to your voice level. As you speak, you will see a frequency spectrum of each word displayed as a series of vertical bars. This is a picture of your voice being scanned at the intermediate rate of 7.813 KHZ. These pictures or "templates" can be stored in RAM for later use with the LEARN, TRAIN, RECOG or SPEAK commands from BASIC.

This is probably a good point to mention that the Voicemaster software contains a master program which provides a "wedge" of 18 new commands into standard Atari BASIC. This means that you can add digitized voice playback and/or voice recognition to any of your BASIC programs.

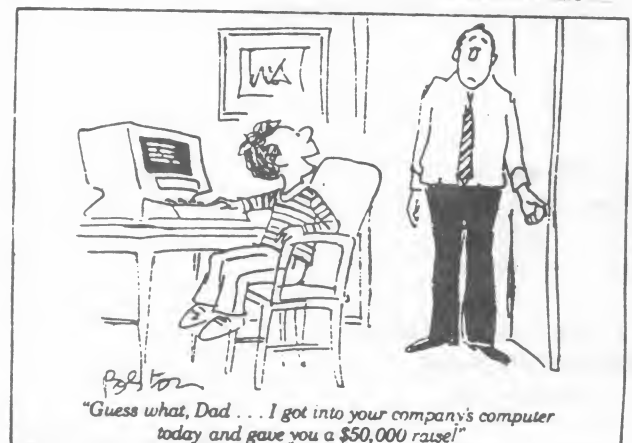
Referring back to the main menu, my favorite demo program is the voice calculator. After it loads, you are asked to speak a series of words three times. This is done to obtain the average of your voice pattern in order to provide a better match with the word recognizer. This technique is known as "dynamic time warping." Once trained, the program sits idle with a cursor waiting for verbal input. As you speak digits one at a time, they mysteriously appear in their appropriate spots on the screen. You can add, subtract, multiply, divide, even use decimals. When finished, you say the word "equals" and the program repeats the digits in your own digitized voice and gives the correct answer. It is totally amazing to sit there and talk to your Atari and have it talk back!

There are a couple of other fun demos such as the talking clock and blackjack programs and there is even the Loadplay program. This allows you to add previously stored speech to any of your BASIC programs without having the voicemaster hardware connected. By the way, the speech quality

produced from your digitized voice does vary depending on the sampling rate selected. There are three sampling rates available with 3.906 KHZ being the slowest and 15.630 KHZ the highest. The slowest rate uses less RAM but is hard to distinguish on playback. The fastest rate gives the best quality but you must blank the screen so the ANTIC chip doesn't steal any cycles from the processor while it is dedicated to your voice.

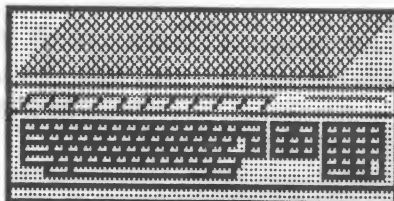
The word recognition capabilities of the voicemaster are truly impressive, and I have already written several of my own programs incorporating speech recognition. If you are musically inclined, there is another super feature. From the main menu you can go to a music menu by selecting the Composer option. This gives you several choices such as music play, record, edit, add notes, etc. In the record mode, the program displays a music staff at the top of your screen and a list of control functions at the bottom. If you hum or whistle into the microphone, you will see notes generated and placed in their correct positions on the staff. As this graphically creates musical notes, it also lists the note alphabetically near the bottom left corner of your screen. From the control menu you can select fast or slow tempos, immediate playback of the note, shift octaves, filter your input signal or see what voice this note is being played in. All this, incredibly enough in real time. Once stored, the music can be played back, edited or printed. Covox has definitely outdone themselves with this combination of hardware and software support. The documentation for all this is well written and goes into great depth explaining all the options and features in two manuals. It even includes a sheet of last minute changes and improvements which never made it to the manual for print. Technical notes are also provided for the software revealing ways to experiment with your voicemaster for other applications.

Altogether, I would rate this as a highly worthwhile investment for your Atari if you want to learn more about voice recognition. It clearly demonstrates the Atari's power as more than a game machine (we all knew that, of course), and even if you don't care about speech processing, it is a hell of a lot of fun!



Reprinted from JACG, reprinted from Suburban Chicago Atarains.

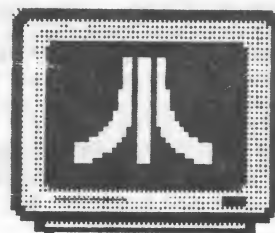
10405T



10405T



THE COMPUTE ENGINE



USER FRIENDLY

8461 PLAZA BLVD. NE
SPRING LAKE PARK, MN
55432

786-8181

"THE ATARI CAPITAL OF MINNESOTA"



Authorized Sales and Service



Twin Citites Atari Interest Group.
3342 Humboldt Ave. N.
Minneapolis Minnesota
55412

Next TAIG meeting
Sunday, March 23
STAG 6:00 PM
TAIG 7:00 PM
at
St. Louis Park Rec. Center
5005 West 36th Street
St. Louis Park, MN.

Remember,
We meet early because of Easter.